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Saving the Forests

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BURNS PROJECT:

ussock Moth Control

MALHEUR • OCHOCO

National Forests

Precision Spraying To Protect Forests

A timber killer is at large on portions of the Malheur and Ochoco National Forests in Eastern Oregon.

The tree destroyer is the Douglas-fir tussock moth, which threatens \$16.5 million worth of young trees and mature timber unless the voracious defoliator can be controlled this spring.

The Douglas-fir tussock moth (*Hemerocampa pseudotsugata* McD.) is one of the most destructive defoliators of true firs and Douglas-fir in Western North America.

In 1929-30, the tussock moth killed 300 million board feet outright on the Colville National Forest in Northeastern Washington. In 1946-47, the largest known attack by this timber killer hit 500,000 acres in Northern Idaho, Northeastern Oregon, and Eastern Washington. Nearly 2 billion board feet of fir timber was threatened before the biggest forest spray project undertaken up to that time brought the infestation under control. DDT was used, and control was achieved with little or no known side effects to other resources in the area.

On the Burns Project, only 15 acres were involved when this insect infestation was first detected in 1963. By 1964, the attack had grown to epidemic proportions involving more than 50,000 acres. Unless control is achieved in 1965, the infestation could possibly cover 200,000 acres.


The Malheur National Forest, where most of the attack is concentrated, has an annual allowable cut of 171 million board feet, the largest timber harvest of any eastside National Forest in the Pacific Northwest Region. Most of the mills in the area are dependent on National Forest timber, with milling capacity far greater than the timber available. Any loss of timber would result in a serious blow to the local economy.

The tussock moth has already killed immature timber on 1,950 acres, and 2.6 million board feet of mature timber, totaling \$219,000 in value.

Immediately threatened are 33,700 acres of young trees and 262.5 million board feet of mature timber, totaling \$4.5 million in value.

Ultimately threatened, unless control is achieved, are 122,000 acres of immature timber and 950 million board feet of mature timber, totaling \$16.5 million in value. The worth to the local economy in manufactured value and payrolls would be several times this amount.

The Forest Service plans to aeri ally spray 55,600 acres in late May and early June of 1965 to control this



Young timber, such as this stand of trees already killed by the voracious defoliator, are especially vulnerable to the tussock moth.

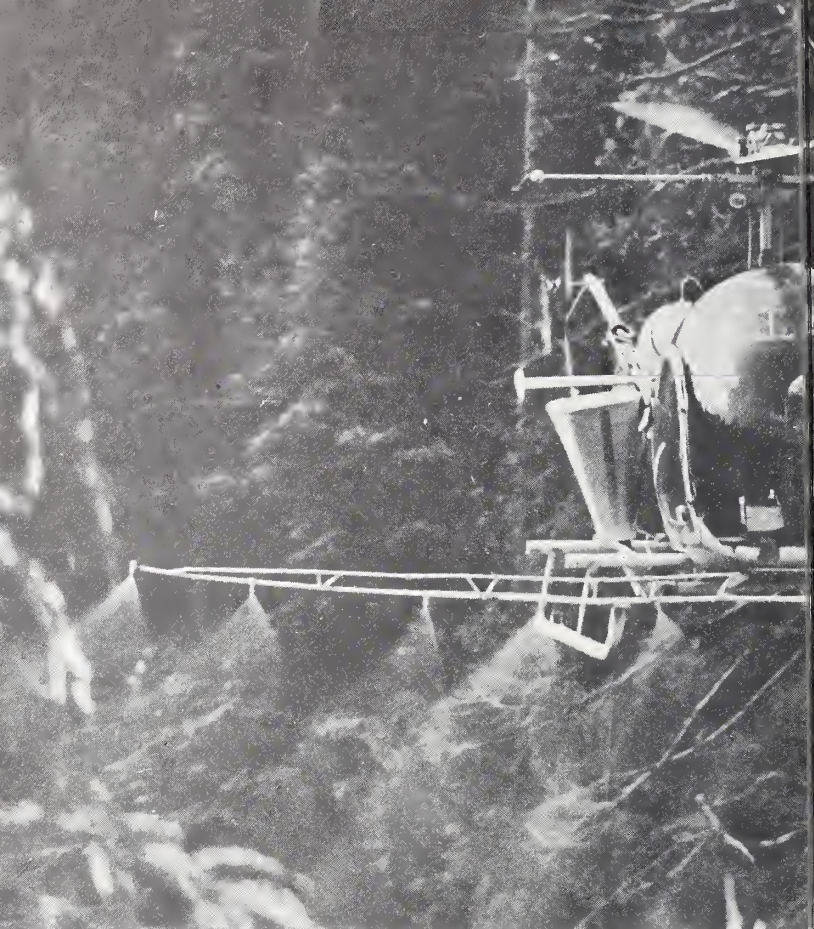
epidemic. Helicopters will be utilized because of their proven ability to apply insect controllants with maximum precision.

DDT, the only known effective weapon against the tussock moth, will be applied at the rate of $3/4$ pound in one gallon of fuel oil, per acre. This is far less than the rate of application normally used in most agricultural spraying and in homes.

Sometimes, infestations of tussock moth are controlled by the moth's natural enemies, including a virus disease. Entomologists, however, see no chance of this happening in time to prevent widespread tree mortality in the case of the Burns infestation.

The Federal Committee on Pest Control, which must review all federally-financed aerial spray insect control projects in the United States, has approved the Burns Project. In addition, the project has been endorsed by the Northwest Forest Pest Action Council, the Pacific Northwest Region's Forest Advisory Council, the Malheur National Forest Advisory Council, the Malheur National Forest Grazing Advisory Board, the County Courts of Harney and Grant Counties, and the Harney County Chamber of Commerce.

A surveillance committee has been organized to determine any possible effects of the spray on other resources. The committee is composed of scientists and technicians from cooperating agencies, including the Oregon State Game Commission, Oregon State University, Oregon State Board of Health, the Bureau of Sport Fisheries and Wildlife, and the Agricultural Research Service. The committee will detect and evaluate any side effects on fish and wildlife, range cattle, soil, water purity, and public health.



Highly maneuverable helicopters, flying at 45 miles per hour, spray insect controllants with maximum precision on the Burns Project. No spraying will be conducted whenever wind velocities exceed 10 miles per hour. The helicopters were taken in 1963 by the Washington State Department of Agriculture for the Black Locust Control Project. Helicopters sprayed some 70,000 acres of forest, fish, oysters, wildlife, water purity, or public health.

Burns Project

Key Personnel

Randall F. Perkins	Director
John F. Wear	Assistant Director
Robert E. Dolph, Jr.	Entomologist
Dr. Glenn L. Crouch	Surveillance Coordinator

Rexford A. Resler, Supervisor
Malheur National Forest, John Day

Cleon L. Clark, Supervisor
Ochoco National Forest, Prineville



for some 30 feet above the treetops, will be used to apply Direct spraying of open meadows or streams will be avoided. 5 miles per hour. This photograph, the one below, and the State Department of Natural Resources during the Willapa Hemlock Forest project, will be used to control the looper, with no observable damage to

Streams in the project area will be checked to determine any impact of the spray on fish or aquatic life.



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Highly maneuverable helicopters, flying at 45 miles per hour some 30 feet above the treetops, will be used to apply insect controllants with maximum precision on the Burns Project. Direct spraying of open meadows or streams will be avoided. No spraying will be conducted whenever wind velocities exceed 5 miles per hour. This photograph, the one below, and the one on the cover, were taken in 1963 by the Washington State Department of Natural Resources during the Willapa Hemlock Looper Control Project. Helicopters sprayed some 70,000 acres to control the looper, with no observable damage to fish, oysters, wildlife, water purity, or public health.

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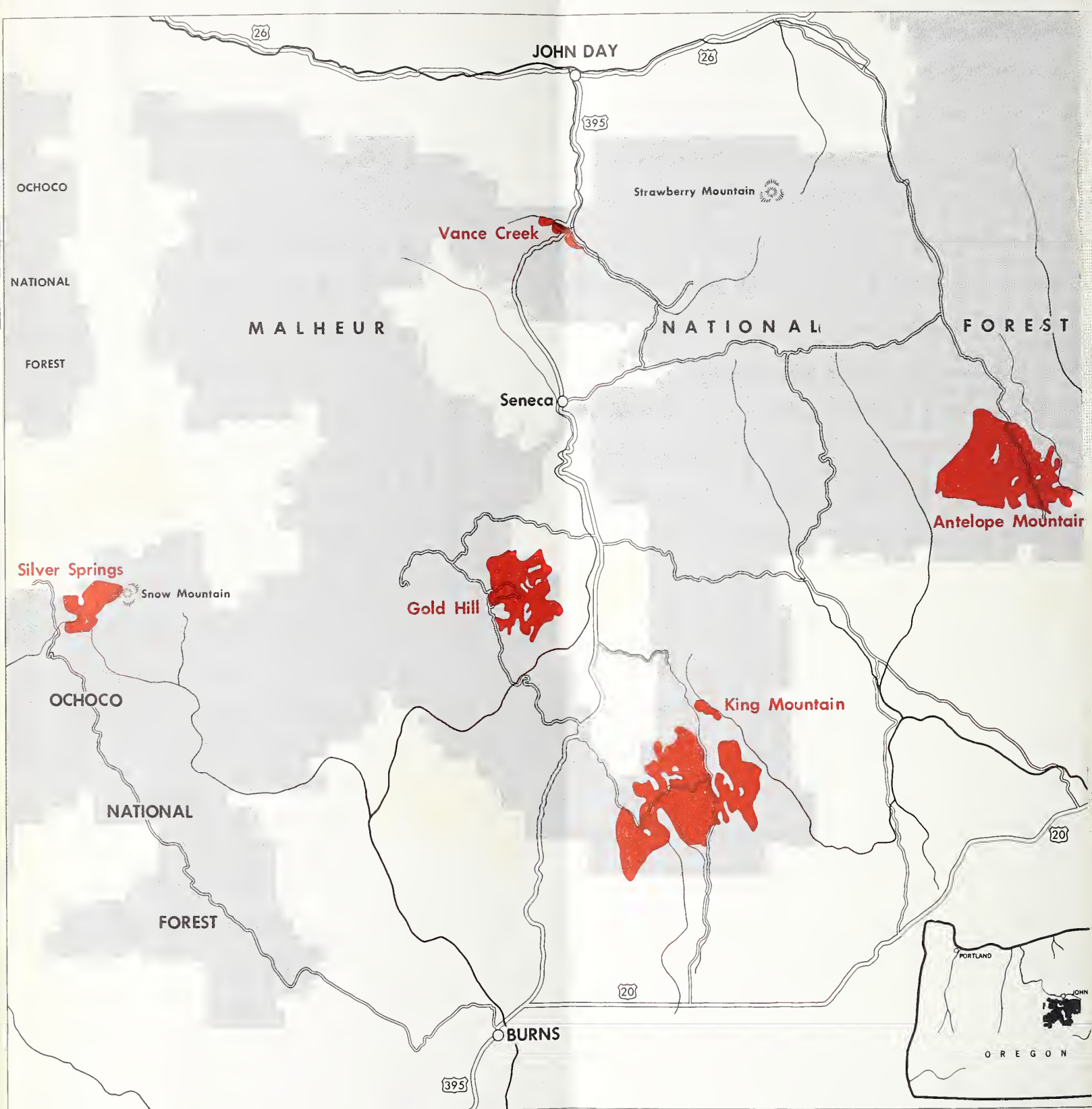




Life Cycle of a Forest Killer

The winged male (1) and the wingless female tussock moths mate in the summer. A single female tussock moth may lay as many as 250 eggs on the cocoon from which she emerged (2). The eggs go through the winter and hatch the following spring. Newly hatched caterpillars are hairy, buoyant, and easily blown great distances by the wind. The full grown caterpillar (3) is the most destructive stage of the tussock moth. It can strip the foliage from true firs and Douglas-fir, killing the top or entire tree in one or two seasons. The insect is most vulnerable to control by aerial spraying during the free-feeding caterpillar stage.





The Burns Project is divided into five separate spray areas. On the Malheur National Forest, the areas and approximate acreages are King Mountain, 23,760 acres; Antelope Mountain, 18,640 acres; Gold Hill, 9,100 acres; and Vance Creek, 570 acres. The one spray area on the Ochoco National Forest is Silver Springs with 3,530 acres. Project headquarters will be established at Burns.

